

Date: August 7, 2019

To: Mayor and Members of City Council
From: Patrick A. Duhaney, City Manager
Subject: FEASIBILITY OF 3D CROSSWALKS

Reference Document #201900829

The Council at its session on May 15, 2019 referred the following item for review and report.

MOTION, submitted by Councilmember Pastor, WE MOVE for the administration to report on the cost and feasibility of 3D crosswalks, which is a method of painting the crosswalks that creates an optical illusion of a speed hump, for all the school crosswalks within the city. In addition, looking at the possibility of piloting these inventive crosswalks at selected areas around the city, specifically school crosswalks that are located among some of our more dangerous school crossing areas that have reported high amounts of incidents with pedestrians and motorists in crosswalks.

The Department of Transportation and Engineering (DOTE) researched the feasibility of installing 3D crosswalks within the City of Cincinnati. The Federal Highway Administration (FHWA) has provided guidance on their frequently asked questions page. The question of 3-D crosswalks is explained as follows:

Q: I've heard about a crosswalk design that simulates 3-dimensional (3-D) objects in the roadway. Is such a concept compliant with the MUTCD?

A: This concept does not comply with the MUTCD. As a result of demonstrated safety concerns, the FHWA is no longer considering field experimentation with "3-D" crosswalk designs. The FHWA had previously approved field experimentation with "3-D" markings until one such experiment showed unintended—and potentially dangerous—effects. A significant percentage of drivers swerved upon seeing the markings, perhaps perceiving them to be real raised objects on the roadway. While this type of driver reaction did decrease over time, the experiment showed that at least more than one in ten drivers might make an evasive or erratic maneuver upon experiencing this or similar installations for the first time. The results suggest that a "3-D" marking design can result in unsafe behavior by drivers. If the design is effective at portraying a 3-dimensional object and drivers believe there are real raised objects on the roadway, it is a reasonable expectation that drivers will take evasive action, such as braking abruptly, in fear of colliding with the perceived obstruction. This type of driver reaction is, in fact, what the experiment showed. The potential for a significant percentage of drivers to react unpredictably is too great a risk to allow further field experimentation.

In addition, DOTE staff researched the topic on the Institute of Transportation Engineers (ITE) forum. The discussion among many traffic professionals generally coincides with FHWA guidance.

Given the guidance whereby the FHWA has stated "The potential for a significant percentage of drivers to react unpredictably is too great a risk to allow further field experimentation", DOTE does not recommend the installation of 3D crosswalks.

cc: John S. Brazina, Interim Director, Transportation and Engineering